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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,451	11/10/2003	Kim Yong-Woon	SAM-0510	6687
<div>7590 Anthony P. Onello, Jr. MILLS & ONELLO LLP Suite 605 Eleven Beacon Street Boston, MA 02108</div>			<div>EXAMINER WANG, TED M</div>	
			<div>ART UNIT 2611</div>	<div>PAPER NUMBER</div>
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	
3 MONTHS			03/19/2007	
			DELIVERY MODE	
			PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/705,451	Applicant(s) YONG-WOON, KIM	
	Examiner Ted M. Wang	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 12-29 is/are rejected.
- 7) ☒ Claim(s) 5-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/20/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what the "delayed signal" it is.

- With regard claim 13, the limitation "with the delayed signal" as recited in line 7 is indefinite since it is not clear that "the delayed signal" is referred to the first delayed signal output or second delayed signal output or both.
- With regard claim 14, the limitation "with the delayed signal" as recited in line 25 is indefinite since it is not clear that "the delayed signal" is referred to the first delayed signal output or second delayed signal output or both.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

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directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Reina (US 6,990,083).

- With regard claim 1, Reina discloses a method of training an echo canceller connected between a transmitter and a receiver in order to cancel signals transmitted by the transmitter and returned to the receiver, the method comprising the steps of:

- (a) controlling sample signals output by the transmitter so that a portion of the sample signals are changed and output (Fig.5 element 120, where the sample signals are controlled by the element 120 from parallel to serial);

- (b) transmitting an initializing signal at the transmitter (column 5 lines 8-16); and

- (c) calculating at least one coefficients (column 5 lines 34-36) and a delay time of the echo canceller (where it is inherent that the EC filter is delayed with respect to the filter coefficients, respectively) based on the initializing signal returned to the receiver.

- With regard claim 2, Reina further discloses wherein the echo canceller is used in a digital subscriber line (xDSL) communication system (Fig.5 and column 3 lines 30-32).

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- With regard claim 3, Reina further discloses wherein the initializing signal is a REVERB signal (column 5 lines 8-16).
- With regard claim 12, Reina discloses a communication system (Fig.5) for transmitting and receiving a data signal through a channel, the communication system comprising:

a transmitter (Fig.5 elements 116-123) for modifying an initializing signal (Fig.5 element 116 output and column 5 lines 8-16) and transmitting the modified initializing signal during operation in a training mode (column 1 lines 59-67) in transmitting the data signal that includes the initializing signal through the channel (column 4 lines 33-57 and column 5 lines 8-16);

a receiver (Fig.5 elements 124-128) for receiving the data signal returned from the channel; and

an echo cancellation circuit (Fig.5 element 10, 132 and 200 and column 5 lines 34-51) connected between the transmitter and the receiver (Fig.5), for removing echoes of the data signal transmitted by the transmitter and received by the receiver (where it is inherent that the echo cancellation circuit is used to cancel the echo),

wherein the echo cancellation circuit is trained in the training mode based on the initializing signal in the data signal received by the receiver (column 5 lines 8-16).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reina (US 6,990,083) in view of Agazzi (US 5,384,806).

- With regard claim 4, Reina discloses all of the subject matter as described in the above paragraph except for specifically teaching wherein the echo canceller is connected between a FIFO synchronizer of the transmitter and a time domain equalizer of the receiver.

However, Agazzi teaches wherein the echo canceller is connected between a FIFO (Fig.4 element 407) synchronizer of the transmitter and a time domain equalizer (Fig.4 element 429 and column 8 lines 12-63) of the receiver in order to determine the errors in echo cancellation and in the synchronization between the input signal and the local signal (column 8 lines 40-44) so that the interference caused by the echo can be eliminated. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Agazzi in which wherein the echo canceller is connected between a FIFO synchronizer of the transmitter and a

time domain equalizer of the receiver, into Reina's transceiver so as to eliminate echo.

- With regard claim 13, Reina further discloses removing echoes of the signal transmitted through the channel and received by the receiver (where it is inherent that the echo cancellation circuit is used to cancel the echo).

Reina discloses all of the subject matter as described in the above paragraph except for specifically teaching wherein the echo cancellation circuit comprises: a first delay unit for delaying a signal output by the transmitter and a second delay unit for delaying a signal output by the echo canceller and for supplying the receiver with the delayed signal.

However, Agazzi wherein the echo cancellation circuit comprises: a first delay (Fig.4 element 407, FIFO) unit for delaying a signal output (Fig.4 element 107) by the transmitter and a second delay unit for delaying (Fig.4 element 431, FIFO) a signal output by the echo canceller (Fig.4 element 409) and for supplying the receiver with the delayed signal (Fig.4 element EC 409 output to element 419 input) in order to determine the errors in echo cancellation and in the synchronization between the input signal and the local signal (column 8 lines 40-44) so that the interference caused by the echo can be eliminated. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the two FIFOs 407 and 431 as taught by Agazzi into input of element 10, Fig.5 and output of 132 output, respectively, of the Reina's echo cancellation circuit so as to eliminate echo.

Allowable Subject Matter

7. Claims 5-11 are objected to as being dependent upon an objected claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M. Wang



Ted M Wang
Examiner
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